DECADE RESISTOR
4636

1. GENERAL. This procurement requires a decade resistance box.

2. CLASSIFICATION. The equipment shall meet the requirements of MIL-PRF-28800F, class 3, for Navy shipboard, submarine and shore applications. The power source and EMI requirements are not invoked.

3. OPERATIONAL REQUIREMENTS The equipment shall provide selectable resistance values within the ranges, accuracy, voltage, and power handling capabilities detailed below.

3.1 Range: Resistance range is 0 to 1,111,110 ohms, with eleven settings per step (0 to 10).

3.2 Contacts: Rotating contacts shall be multi-leaf solid silver alloy. The stationary contacts shall be solid silver alloy. Silver plating over base metal contact construction is unacceptable. Operation of the decade box shall provide make-before-break between resistance settings.

3.3 Resistance at Zero Setting: $\leq$12 mΩ at DC.

3.4 Inductance: $\leq$0.8 μh with all decades set to zero.

3.5 Capacitance: $\leq$20 pF/decade with the low terminal connected to the shield.

3.6 Resolution: One ohm resolution on the ten ohms decade, increasing by a factor of 10 for each succeeding decade.

3.7 Accuracy: $\pm$(0.01% + 6 mΩ)at VDC and 23^{o} ($\pm$1^{o}) C, referenced to zero resistance setting.

3.8 Frequency Characteristics: The resistance deviation from the value at DC shall not be greater than 0.5% at 1 kHz and 5% at 10 kHz.

3.9 Signal Handling Requirements: The breakdown voltage shall be equal to or greater than 1 kvolts dc + peak ac (high or low terminal to shield).

3.10 Current and Power: Each decade shall satisfy the following power and current minimums.

Decade	R/step	Current	Power/Step	Temperature Coefficient (PPM/C)	Power Coefficient (PPM/mW/step)
10	1	0.7 A	0.5 W	20	0.6
100	10	230 mA	0.5 W	20	0.45
1 k	100	70 mA	0.5 W	10	0.15
10 k	1 k	23 mA	0.5 W	10	0.15
100k	10 k	7 mA	0.5 W	10	0.15
1 Meg	100 k	2.3 mA	0.5 W	10	0.15

3.11 Interface Requirements:

a. The decade box shall be provided with labeled high, low, and shield banana lugs.
b. The connector type shall be inline with 19.05 mm (0.75 inch) spacing.
c. The high and low terminals shall be isolated from the chassis.
d. The shield terminal shall be connected to the chassis and isolated from the high and low terminals.

4. GENERAL REQUIREMENTS.

4.1 Weight: 3.9 kg (8.5 lbs.) maximum.

4.2 Dimensions: The equipment shall not exceed the maximum dimensions for shipboard applications as specified in MIL-PRF-28800.

4.3 Technical manual: A technical manual shall be provided in both printed and electronic formats. The printed format shall be otherwise normally provided. The electronic format shall consist of the installation programs for the latest version of Adobe Acrobat for all computer platforms for which Acrobat is available and the technical manual in an electronic form that is readable through use of the Adobe Acrobat application.